IN THE CLAIMS:

1. (Currently amended) A system for synchronizing a Controller Area Network (CAN) interface with a peripheral device ~~interfacing a host computer to a Controller Area Network (CAN) bus~~, the system comprising:

a peripheral device, coupled to a host computer via an I/O bus;

a CAN interface, coupled to the host computer via the I/O bus, wherein the CAN interface comprises:

a memory configured to store program code;

an embedded processor coupled to the memory, and configured to execute the program code;

bus interface logic coupled to the embedded processor~~, wherein the bus interface logic is operable to couple to the interconnecting bus, wherein the bus interface logic is adapted to interface with the peripheral device through the interconnecting bus~~; and

CAN interface logic coupled to the embedded processor and configured for interfacing with a [[the]] CAN bus; and

an interconnecting bus, coupling the peripheral device to the CAN interface via the bus interface logic of the CAN interface;

wherein the peripheral device is operable to generate an asynchronous trigger on the interconnecting bus in response to a peripheral event;

wherein the CAN interface is operable to receive the asynchronous trigger via the interconnecting bus;

wherein the embedded processor is operable to execute the program code to perform a CAN event in response to said CAN interface ~~bus interface logic~~ receiving [[a]] the asynchronous trigger ~~signal~~ on the interconnecting bus from the peripheral device, wherein the CAN event is performed substantially synchronously with the peripheral event; and

wherein the generation and receipt of the asynchronous trigger, and the performing the CAN event are performed independently of the I/O bus.

~~wherein, in response to receiving the trigger signal, the embedded processor is operable to perform the CAN event substantially synchronously with an event performed by the peripheral device.~~

2. (Cancelled)

3. (Original) The system of claim 1, wherein the CAN event comprises transmission of a CAN frame onto the CAN bus.

4. (Currently amended) The system of claim 1, wherein the CAN event comprises generating a timestamp defining a time-of-occurrence of the asynchronous trigger ~~signal~~ and storing the timestamp in said memory.

5. (Currently amended) The system of claim 1, wherein the bus interface logic is operable to receive the asynchronous trigger ~~signal~~ on a first line of a plurality of lines on the interconnecting bus;

wherein the embedded processor is operable to receive configuration information from the host computer, wherein the configuration information selects the first line among a plurality of lines of said interconnecting bus.

6. (Original) The system of claim 1, wherein the interconnecting bus is the Real-Time System Integration (RTSI) bus.

7. (Currently amended) A system for synchronizing a Controller Area Network (CAN) interface with a peripheral device, ~~interfacing a host computer to a Controller Area Network (CAN) bus~~, the system comprising:

a peripheral device, coupled to a host computer via an I/O bus;

a CAN interface, coupled to the host computer via the I/O bus, wherein the CAN interface comprises:

a memory configured to store program code;

an embedded processor coupled to the memory, and configured to execute the program code;

bus interface logic coupled to the embedded processor~~, wherein the bus interface logic is operable to couple to an interconnecting bus, wherein the bus interface logic is adapted to interface with a device through the interconnecting bus~~; and

CAN interface logic coupled to the embedded processor and adapted for interfacing with a [[the]] CAN bus; and

an interconnecting bus, coupling the peripheral device to the CAN interface via the bus interface logic of the CAN interface;

wherein the CAN interface is operable to generate an asynchronous trigger on the interconnecting bus in response to a CAN event;

wherein the peripheral device is operable to receive the asynchronous trigger via the interconnecting bus;

wherein the bus interface logic of the CAN interface is configured to assert ~~a~~ the asynchronous trigger ~~signal~~ on the interconnecting bus to the peripheral device in response to the embedded processor performing a CAN event, wherein ~~the trigger signal is useable to direct~~ the peripheral device is operable to perform [[an]] a peripheral event substantially synchronously with the CAN event upon receiving the asynchronous trigger on the interconnecting bus from the CAN interface; and

wherein the generation and receipt of the asynchronous trigger, and the performing the peripheral event are performed independently of the I/O bus.

8. (Cancelled)

9. (Original) The system of claim 7, wherein the CAN event comprises transmission of a CAN frame.

10. (Original) The system of claim 7, wherein the CAN event comprises reception of a CAN frame.

11. (Original) The system of claim 7, wherein the CAN event comprises receiving an indication of a function call invoked by a user application program running on the host computer.

12. (Currently amended) The system of claim 7, wherein the embedded processor is operable to receive configuration information from the host computer, wherein the configuration information selects a first line among a plurality of lines of said interconnecting bus for transmission of the asynchronous trigger ~~signal~~.

13. (Original) The system of claim 7 wherein the interconnecting bus is a Real-Time System Integration (RTSI) bus.

14. (Currently amended) A method for synchronizing a Controller Area Network (CAN) interface with a peripheral device, ~~operating a Controller Area Network (CAN) interface~~, wherein the CAN interface and the [[a]] peripheral device are both coupled to a host computer via an I/O bus, wherein the CAN interface and the peripheral device are directly coupled through an interconnecting bus, the method comprising:

the peripheral device generating an asynchronous trigger on the interconnecting bus in response to a peripheral event;

the CAN interface receiving ~~a~~ the asynchronous trigger from the peripheral device through [[an]] the interconnecting bus; and

the CAN interface performing a CAN event in response to the asynchronous trigger ~~signal~~;

wherein, in response to receiving the asynchronous trigger ~~signal~~, the CAN interface performs the CAN event substantially synchronously with the peripheral event ~~an event performed by the peripheral device~~; and

wherein the generation and receipt of the asynchronous trigger, and the performing the CAN event are performed independently of the I/O bus.

15. (Original) The method of claim 14, wherein the CAN event comprises transmission of a CAN frame onto a CAN bus which couples to the CAN interface.

16. (Currently amended) The method of claim 14, wherein the CAN event comprises generating a timestamp defining a time-of-occurrence of the asynchronous trigger ~~signal~~, and storing the timestamp in a memory of the CAN interface.

17. (Original) The method of claim 14, wherein the interconnecting bus is the Real-Time System Integration (RTSI) bus.

18. (Currently amended) The method of claim 14, wherein the peripheral device transmits the asynchronous trigger ~~signal~~ in response to performing a data transfer.

19. (Currently amended) A method for synchronizing a Controller Area Network (CAN) interface with a peripheral device, ~~operating a Controller Area Network (CAN) interface,~~ wherein the CAN interface and the [[a]] peripheral device are both coupled to a host computer using an I/O bus, wherein the CAN interface and the peripheral device are directly coupled through an interconnecting bus, the method comprising:

the CAN interface performing a CAN event; and

the CAN interface transmitting ~~a~~ an asynchronous trigger ~~signal~~ to the peripheral device through the interconnecting bus in response to the CAN interface performing the CAN event;

wherein the asynchronous trigger ~~signal~~ is operable to direct the peripheral device to perform a peripheral event substantially synchronously with the CAN event in response to the asynchronous trigger ~~signal~~; and

wherein the transmission of the asynchronous trigger and the performing each of the CAN event and the peripheral event are performed independently of the I/O bus.

20. (Original) The method of claim 19, wherein the CAN event comprises transmission of a CAN frame.

21. (Original) The method of claim 19, wherein the CAN event comprises reception of a CAN frame.

22. (Original) The method of claim 19, wherein the CAN event comprises receiving an indication of a function call invoked by a user application program running on the host computer.

23. (Original) The method of claim 19, wherein the interconnecting bus is a Real-Time System Integration (RTSI) bus.

24. (Currently amended) A system for synchronizing a Controller Area Network (CAN) interface device with a peripheral device, ~~performing a measurement on a physical system,~~ the system comprising:

a host computer system;

a peripheral device coupled to the host computer system via an I/O bus, wherein the peripheral device couples to the physical system;

a Controller Area Network (CAN) bus;

one or more CAN devices coupled to the CAN bus, wherein the one or more CAN devices couple to the physical system;

~~an interconnecting bus; and~~

a CAN interface device coupled to the host computer system via the I/O bus~~,~~ ~~wherein the CAN interface device is directly coupled to the peripheral device through the interconnecting bus~~; and

an interconnecting bus, coupling the peripheral device to the CAN interface device;

wherein the CAN interface device and the peripheral device are operable to communicate with each other using the interconnecting bus to synchronize measurement and/or control operations on the physical system, wherein said communicating is performed independently of the I/O bus;~~.~~

wherein said communicating with each other comprises using an asynchronous trigger signal.

25. (Original) The system of claim 24,

wherein the CAN interface device includes:

bus interface logic for interfacing with the interconnecting bus;

CAN interface logic configured to interface with the CAN bus.

26. (Currently amended) The system of claim 24,

wherein the peripheral device is operable to provide ~~a~~ the asynchronous trigger signal over the interconnecting bus to the CAN interface device in response to a peripheral event occurring in the peripheral device;

wherein the CAN interface device is operable to receive the asynchronous trigger signal from the interconnecting bus, and to perform a CAN event in response to receiving the asynchronous trigger signal.

27. (Previously presented) The system of claim 26, wherein the peripheral event comprises one or more of: initiation of a signal transmission from the peripheral device to the physical system; and acquisition of a signal from the physical system.

28. (Original) The system of claim 26, wherein the CAN event comprises one or more of: transmitting a CAN frame to one or more of the CAN devices; or generating a signal timestamp indicating a time-of-occurrence of the signal.

29. (Currently amended) The system of claim 24,

wherein the CAN interface device is operable to provide ~~a~~ the asynchronous trigger signal over the interconnecting bus to the peripheral device in response to a CAN event occurring in the CAN interface device;

wherein the peripheral device is operable to receive the asynchronous trigger signal from the interconnecting bus, and to perform a peripheral event in response to receiving the asynchronous trigger signal.

30. (Original) The system of claim 24, wherein the interconnecting bus is the Real-Time System Integration (RTSI) bus.

31. (Currently amended) A method for correlating measurements in a system comprising a host computer system coupled to a Controller Area Network (CAN) [[CAN]] interface and a peripheral device via an I/O bus, wherein the CAN interface is adapted to couple through a CAN bus to one or more CAN devices, wherein the CAN devices couple to a physical system, wherein the peripheral device is also adapted to couple to the physical system, wherein the peripheral device and the CAN interface are directly coupled through an interconnecting bus, the method comprising:

the CAN interface acquiring CAN data frames from the CAN bus;

the CAN interface generating CAN timestamps for the acquired CAN data frames;

the peripheral device transmitting ~~a~~ an asynchronous trigger signal on the interconnecting bus to the CAN interface in response to a peripheral event performed by the peripheral device;

the CAN interface receiving the asynchronous trigger signal and generating a trigger timestamp for the asynchronous trigger signal; and

determining from the CAN timestamps and the trigger timestamps one or more of the CAN data frames which correlate in time with the peripheral event~~;~~,

wherein the transmission and receipt of the asynchronous trigger signal and the performing the peripheral event are performed independently of the I/O bus.

32. (Original) The method of claim 31, further comprising:

analyzing the physical system using the CAN data frames which correlate in time with the peripheral event.

33. (Original) The method of claim 31, wherein said determining is performed by the CAN interface.

34. (Original) The method of claim 31, further comprising the host computer system reading the CAN data frames, CAN timestamps and trigger timestamps, wherein said determining one or more CAN data frames which correlate in time with the peripheral event is performed by the host computer system.

35. (Original) The method of claim 31, wherein the peripheral event comprises one of: the peripheral device transmitting signals to the physical system; the peripheral device acquiring signals from the physical system; a clock signal transition.

36. (Original) The method of claim 31, wherein the interconnecting bus is the Real-Time System Integration (RTSI) bus.

37. (Currently amended) A method for correlating measurements in a system comprising a host computer system coupled to a [[CAN]] Controller Area Network (CAN) interface and a peripheral device using an I/O bus, wherein the CAN interface is adapted to couple through a CAN bus to one or more CAN devices, wherein the CAN devices couple to a physical system, wherein the peripheral device is also adapted to couple to the physical system, wherein the peripheral device and the CAN interface are directly coupled through an interconnecting bus, the method comprising:

the peripheral device transferring data values;

the peripheral device generating peripheral timestamps indicating times-of-transference of said data values;

the CAN interface performing a CAN frame transfer;

the CAN interface transmitting ~~a~~ an asynchronous trigger signal on the interconnecting bus to the peripheral device in response to the CAN frame transfer;

the peripheral device receiving the trigger signal and generating a trigger timestamp indicating a time-of-occurrence of the asynchronous trigger signal; and

determining from the peripheral timestamps and the trigger timestamp one or more of the data values which correlate in time with the CAN frame transfer;

wherein the transmission and receipt of the asynchronous trigger signal are performed independently of the I/O bus.

38. (Original) The method of claim 37, wherein said peripheral device transferring data values comprises said peripheral device acquiring said data values from the physical system.

39. (Original) The method of claim 37, wherein said peripheral device transferring data value comprises said peripheral device transmitting said data value to the physical system.

40. (Original) The method of claim 37, wherein said CAN interface performing a CAN frame transfer comprises said CAN interface receiving a CAN frame from the CAN bus.

41. (Original) The method of claim 37, wherein said CAN interface performing a CAN frame transfer comprises said CAN interface transmitting a CAN frame onto the CAN bus.

42. (Original) The method of claim 37, wherein the interconnecting bus comprises the Real-Time System Integration (RTSI) bus.

43. (New) The system of claim 1, wherein the I/O bus comprises one or more of:

an ISA bus; and

a PCI expansion bus.

44. (New) The system of claim 7, wherein the I/O bus comprises one or more of:

an ISA bus; and

a PCI expansion bus.

45. (New) The method of claim 14, wherein the I/O bus comprises one or more of:

an ISA bus; and

a PCI expansion bus.

46. (New) The method of claim 19, wherein the I/O bus comprises one or more of:

an ISA bus; and

a PCI expansion bus.

47. (New) The system of claim 24, wherein the I/O bus comprises one or more of:

an ISA bus; and

a PCI expansion bus.

48. (New) The method of claim 31, wherein the I/O bus comprises one or more of:

an ISA bus; and

a PCI expansion bus.

49. (New) The method of claim 37, wherein the I/O bus comprises one or more of:

an ISA bus; and

a PCI expansion bus.